

**IN THE CLAIMS**

Please amend the claims as follows:

1. (currently amended) A primary battery, comprising:

a cathode;

an anode having a first medium including a first active material and a second medium including a second active material,

the second medium having a chemical composition that is different from a chemical composition of the first medium,

the second medium having a non-zero concentration gradient of the of a second active material in the second medium,

the concentration gradient being present in the anode before initial discharge of the primary battery; and

an electrolytic solution in contact with the cathode and the anode.

2. (previously presented) The battery of claim 1, wherein the first medium is positioned so as to protect at least a portion of the second medium from the electrolytic solution, the first medium being configured to dissipate during discharge of the battery enough to expose one or more of the protected regions of the second medium to the electrolytic solution.

3. (previously presented) The battery of claim 1, wherein the first medium is positioned so as to protect at least a portion of the second medium from the electrolytic solution, the first medium being positioned such that the concentration of the second active material decreases in a direction moving away from the first medium.

4. (canceled)

5. (previously presented) The battery of claim 1, wherein a chemical composition of the first active material includes a component in common with a chemical composition of the second active material

6. (previously presented) The battery of claim 5, wherein an ion of the common component is

present in the electrolytic solution.

7. (previously presented) The battery of claim 5, wherein the cathode excludes the common component before discharge of the battery.

8. (previously presented) The battery of claim 5, wherein the first active material consists of the common component.

9. (previously presented) The battery of claim 8, wherein the common component is lithium.

10. (previously presented) The battery of claim 1, wherein the first active material and the second active material are selected such that the second active material can be generated by exposing the first active material and a second active material precursor to an electrolytic solution.

11. (previously presented) The battery of claim 1, wherein the first active material includes lithium and the second active material includes lithium, silicon, and oxygen.

12. (previously presented) The battery of claim 1, wherein the cathode includes one or more components selected from the group consisting of  $\text{CF}_x$ ,  $\text{MnO}_2$ , silver vanadium oxide (SVO),  $\text{SOCl}_2$  and  $\text{SO}_2\text{Cl}_2$ .

13. (previously presented) The battery of claim 1, wherein the cathode includes  $\text{CF}_x$ .

14. (previously presented) The battery of claim 1, wherein the electrolytic solution includes one or more components serving as a secondary reactant in a secondary reaction including as a reactant the secondary reactant and a product of one or more primary reactions, the one or more primary reactions occur at an electrode during discharge of the battery prior to the secondary reaction.

15. (previously presented) The battery of claim 14, wherein the electrolytic solution includes

one or more components selected from the group consisting of lithium bis(oxalato)borate, lithium cyclopentadiene, lithium tetramethylcyclopentadiene, vinyl sulfolane, and carbon disulfide.

16. (previously presented) The battery of claim 14, wherein the electrolytic solution includes lithium bis(oxalato)borate.

17. (previously presented) The battery of claim 14, wherein the anode, cathode and electrolytic solution are selected to produce a voltage discharge profile having a capacity approximation section with a slope in a range of -3.0%/ to -0.3%/ for a depth of discharge duration of at least 15%.

18. (previously presented) The battery of claim 14, wherein the anode, cathode and electrolytic solution are selected to produce a voltage discharge profile having a plateau before the capacity approximation section, the plateau having a slope in a range of -0.3%/ to 0.3%/ for a depth of discharge duration of at least 15%.

19. (currently amended) A primary battery, comprising:

a cathode;

an anode having a first medium including first active material and a second medium including a second active material,

the second medium having a chemical composition that is different from a chemical composition of the first medium,

a chemical composition of the first active material having a component in common with a chemical composition of the second active material,

the first active medium contacting the second active medium, the first active medium including lithium metal and the second medium ~~active~~ including SiO and the second active material including LiSiO; and

an electrolytic solution in contact with the anode and the cathode.

20. (previously presented) The battery of claim 19, wherein the first active material is present in

an amount that would cause the first active material to be depleted if the first active material were the only active material in the anode.

21. (previously presented) The battery of claim 19, wherein an ion of the common component is present in the electrolytic solution.

22. (previously presented) The battery of claim 19, wherein the first active material and the second active material are selected such that the second active material can be generated by exposing the first active material and a second active material precursor to an electrolytic solution.

23. (previously presented) The battery of claim 19, wherein the first active material consists of the common component.

24. (canceled)

25. (previously presented) The battery of claim 19, wherein the first active material includes lithium and the second active material includes lithium, silicon, and oxygen.

26. (previously presented) The battery of claim 19, wherein the cathode excludes the common component before discharge of the battery.

27. (previously presented) The battery of claim 19, wherein the cathode includes one or more components selected from the group consisting of  $\text{CF}_x$ ,  $\text{MnO}_2$ , silver vanadium oxide (SVO),  $\text{SOCl}_2$ , and  $\text{SO}_2\text{Cl}_2$ .

28. (previously presented) The battery of claim 19, wherein the cathode includes  $\text{CF}_x$ .

29. (previously presented) The battery of claim 19, wherein the electrolytic solution includes one or more components serving as a secondary reactant in a secondary reaction including as a reactant the secondary reactant and a product of one or more primary reactions, the one or more

primary reactions occur at an electrode during discharge of the battery prior to the secondary reaction.

30. (previously presented) The battery of claim 29, wherein the electrolytic solution includes one or more components selected from the group consisting of lithium bis(oxalato)borate, lithium cyclopentadiene, lithium tetramethylcyclopentadiene, vinyl sulfolane, and carbon disulfide.

31. (previously presented) The battery of claim 29, wherein the electrolytic solution includes lithium bis(oxalato)borate.

32. (previously presented) The battery of claim 19, wherein the anode, cathode and electrolytic solution are selected to produce a voltage discharge profile having a capacity approximation section with a slope in a range of  $-3.0\%/%$  to  $-0.3\%/%$  for a depth of discharge duration of at least 15%.

33. (previously presented) The battery of claim 19, wherein the anode, cathode and electrolytic solution are selected to produce a voltage discharge profile having a plateau before the capacity approximation section, the plateau having a slope in a range of  $-0.3\%/%$  to  $0.3\%/%$  for a depth of discharge duration of at least 15%.

34. (previously presented) A primary battery, comprising:

an electrolytic solution contacting a cathode and an anode, the electrolytic solution, the anode and cathode selected to produce a voltage discharge profile with a capacity approximation section (CAS) having a slope continuously in a range of  $-3.0\%/%$  to  $-0.3\%/%$  for a depth of discharge duration of at least 15%, wherein said CAS is immediately preceded by a plateau with a slope continuously in a range of  $-0.3\%/%$  to  $0.3\%/%$  for a discharge duration of at least 15%.

35. (previously presented) The battery of claim 34, wherein the anode includes a first active material and a second active material.

36. (previously presented) The battery of claim 34, wherein a chemical composition of the first active material and a chemical composition of the second active material include at least one common component.

37. (previously presented) The battery of claim 34, wherein the anode includes a first medium having a first active material and a second medium having a second active material.

38. (previously presented) The battery of claim 34, wherein the plateau has a slope that is continuously in a range of  $-0.3\%/%$  to  $0.3\%/%$  for a discharge duration of at least 50%.

39. (previously presented) The battery of claim 34, wherein the capacity approximation section has a slope that is continuously in a range of  $-2.5\%/%$  to  $-0.3\%/%$  for a discharge duration of at least 15%.

40. (previously presented) The battery of claim 34, wherein the voltage discharge profile does not exhibit an inflection point before dropping off at end-of-life.

41. (previously presented) A primary battery, comprising:

an electrolytic solution contacting a cathode and an anode having a first medium including a first active material and a second medium having a second active material, the electrolytic solution, the anode and cathode are selected to produce a voltage discharge profile with a capacity approximation section (CAS) having a slope continuously in a range of  $-3.0\%/%$  to  $-0.3\%/%$  for a discharge duration of at least 15%.

42. (previously presented) The battery of claim 41, wherein the capacity approximation section has a slope continuously in a range of  $-2.5\%/%$  to  $-0.3\%/%$  for a discharge duration of at least 15%.

43. (previously presented) The battery of claim 41, wherein the capacity approximation section

has a slope continuously in a range of  $-3.0\%/%$  to  $-0.3\%/%$  for a discharge duration of at least 20%.

44. (previously presented) The battery of claim 41, wherein the capacity approximation section has a slope continuously in a range of  $-2.5\%/%$  to  $-0.3\%/%$  for a discharge duration of at least 20%.

45. (previously presented) The battery of claim 41, wherein a chemical composition of the first active material and a chemical composition of the second active material include at least one common component.

46. (previously presented) The battery of claim 41, wherein the voltage discharge profile has a plateau preceding said CAS with a slope continuously in a range of  $-0.3\%/%$  to  $0.3\%/%$  for a discharge duration of at least 15%.

47. (previously presented) The battery of claim 41, wherein the voltage discharge profile has a plateau preceding said CAS with a slope continuously in a range of  $-0.3\%/%$  to  $0.3\%/%$  for a discharge duration of at least 50%.

48.-73. (canceled)

74. (previously presented) The battery of claim 11, wherein the second active material is  $\text{LiSiO}$ .

75. (previously presented) The battery of claim 74, wherein the second medium includes  $\text{SiO}$ .

76. (new) The battery of claim 1, wherein the second medium includes a second active material precursor that can react with the first active material to form the second active material.

77. (new) The battery of claim 1, wherein the second medium has a second non-zero concentration gradient of the second active material precursor in the second medium, the second

non-zero gradient being present in the second medium before initial discharge of the primary battery.

78. (new) The battery of claim 19, wherein the second medium has a first non-zero concentration gradient of the  $\text{LiSiO}$  in the second medium and has a second non-zero concentration gradient of the  $\text{SiO}$  in the second medium, the first non-zero concentration gradient and the second non-zero concentration gradient being present in the second medium before initial discharge of the primary battery.